

US009410574B2

(12) United States Patent Kuo et al.

(10) Patent No.: U

US 9,410,574 B2

(45) **Date of Patent:**

Aug. 9, 2016

(54) LINEAR BALL BEARING GUIDEWAY

(71) Applicant: HIWIN TECHNOLOGIES CORP.,

Taichung (TW)

(72) Inventors: Chang-Hsin Kuo, Taichung (TW);

Sheng-Hsiang Huang, Taichung (TW)

(73) Assignee: Hiwin Technologies Corp., Taichung

(TW)

(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 88 days.

(21) Appl. No.: 14/519,458

(22) Filed: Oct. 21, 2014

(65) Prior Publication Data

US 2016/0108955 A1 Apr. 21, 2016

(51) Int. Cl.

F16C 19/00 (2006.01)

F16C 29/06 (2006.01) *F16C 29/00* (2006.01)

F16C 29/04 (2006.01)

(52) U.S. Cl.

CPC F16C 29/0638 (2013.01); F16C 29/005 (2013.01); F16C 29/04 (2013.01)

(58) Field of Classification Search

CPC F16C 29/005; F16C 29/04; F16C 29/06; F16C 29/0633; F16C 29/0635; F16C 29/0638;

F16C 29/0642; F16C 29/0654; F16C 29/0659; F16C 29/0671 See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

4/2013 Kishi et al.

8,414,190 B2
* cited by examiner

Primary Examiner — James Pilkington (74) Attorney, Agent, or Firm — Wang Law Firm, Inc.

(57) ABSTRACT

A linear ball bearing guideway is provided with six rows of balls disposed between the slider and the rail, so as to improve the overall load capacity. The six rows of balls are symmetrically disposed at two sides of the head portion of the rail, and the three of the six rows of balls at each side are located at different heights. The neck-portion width of the head portion is smaller than a distance between the two rows of balls disposed at the lowest rail rolling grooves, but larger than the value of a distance between the two rows of balls in the highest rail rolling grooves minus a diameter of the balls, which ensures that the neck-portion width is overly small and affect the stiffness of the rail.

8 Claims, 9 Drawing Sheets

